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ABSTRACT

This is a bibliography of literature on the subject of tension. Books, films, and periodicals with a bearing on stress, relaxation, anxiety, and/or methods of controlling stress are listed from the fields of physiology, psychology, and philosophy. New methods such as transcendental meditation and biofeedback are analyzed briefly and criteria are suggested for evaluating research. Annotations are supplied for most of the books listed; some books are reviewed in more detail. Publishers' addresses and costs are provided for the majority of the entries. (CD)

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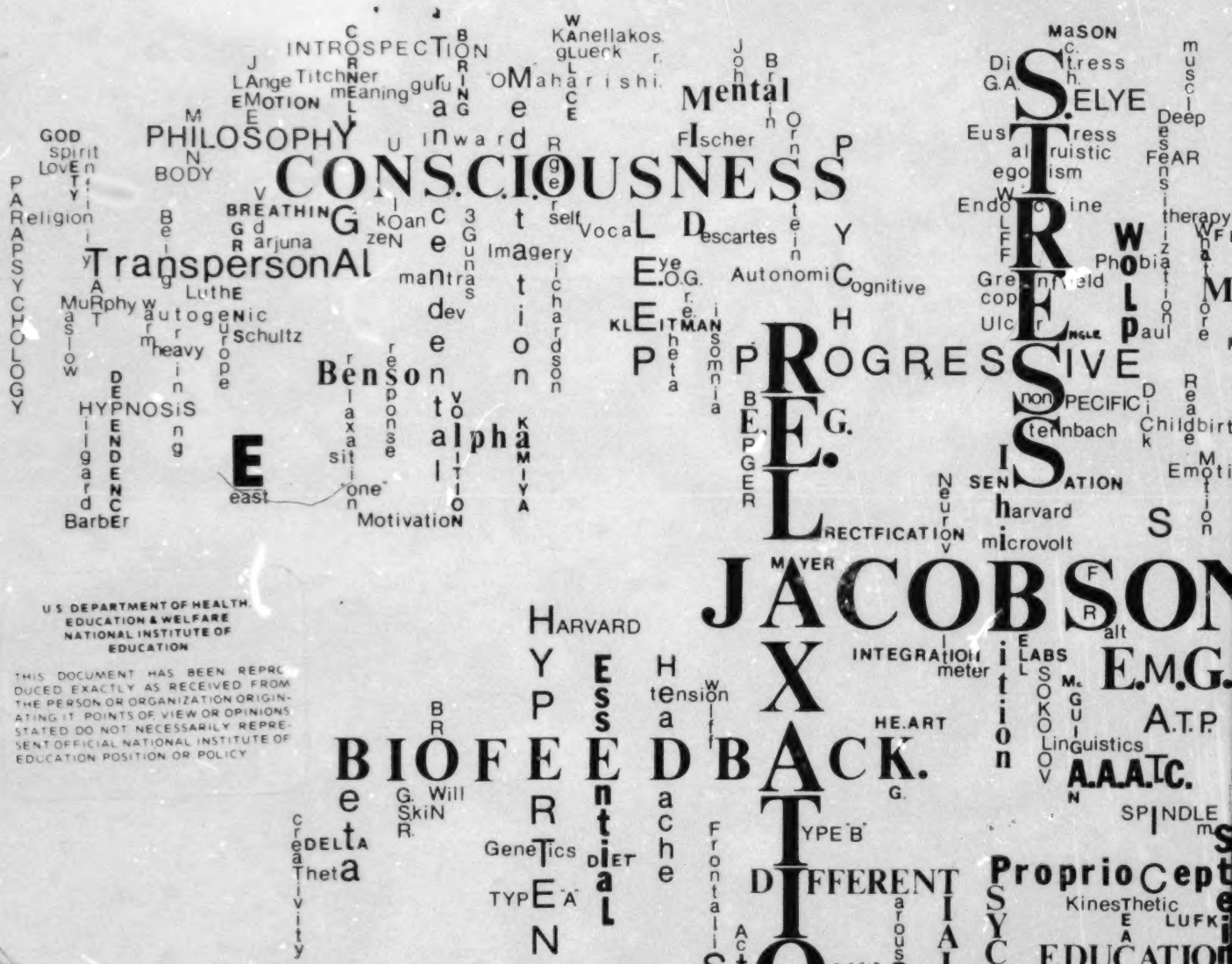

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The Tension Literature

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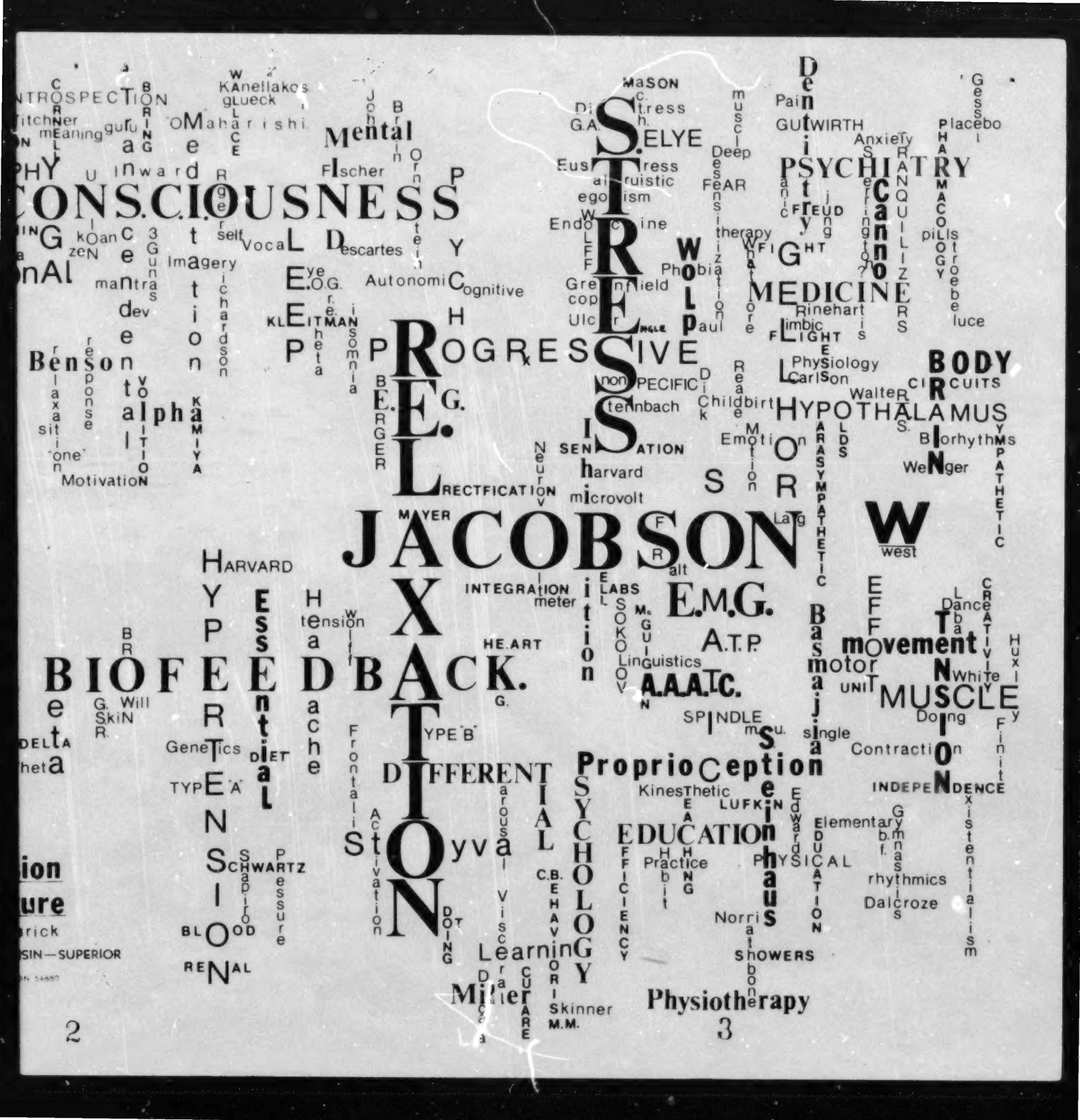
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Essential
HYPERTENSION
BLOOD
RENAL
HARVARD
DIFFERENTIAL
PSYCHOLOGY
EDUCATION
Physiotherapy
Learning
Miller
Skinner
Proprioception
Kinesthetic
Selye
Cannon
Wolpe
Eysenck
Schwartz
Selye
Basmajian
E.M.G.
A.T.P.
A.A.A.I.C.
MUSCLE
movement
BODY
HYPOTHALAMUS
Physiology
Carlson
Walter
Wenger
Biorhythms
Sympathetic
Parasympathetic
Sensation
Emotion
Motivation
Harvard
microvolt
Rectfication
Integration
Linguistics
Spindle
Contraction
Independence
Elementary
rhythmics
Dalcroze
Gymnastics
Practice
Habit
Showers
Norris
Edward
Physical
Education
Efficiency
Behavior
Conditioning
Autonomic
Cognitive
Endocrine
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Placebo
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Tension
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Frontalis
Activation
Arousal
Visceral
Skin
Temperature
Pressure
Genetics
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Type B
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Delta
Beta
Yoga
Zen
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Mantra
Imagery
Inward
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Maharishi
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Meaning
Consciousness
Ego
Self
Vocal
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Fiber
Finite
Existentialism
Gestalt
Freud
Jung
Fischer
Brain
Wave
Stress
Ulcer
Paul
Dick
Reading
Childbirth
Lamaze
Lamaze
Lamaze

INDEX

General references 1

Selected audio-visual materials 6

Supplementary reference works 7

Bibliographical references 8

List of journals including new journals 9

Criteria 12

Words 15

THE LITERATURE OF TENSION - A SELECTED LIST

The itemized list prepared herein especially for members of the American Association for the Advancement of Tension Control is intended to promote the following:

1. To serve as a basic resource list for the AAATC.
2. To assist non-members in obtaining valuable resources prior to the initiation of research and/or instruction in tension control.
3. To be employed as basic references for the development of a set of operational definitions for terminology common to the diverse set of professionals served by the AAATC with the hope of arriving at some common ground for dialogue.
4. To be employed in the development of a set of criteria for the assessment and encouragement of research in tension control.
5. To serve as a format, later inclusive of key words, for the efficient retrieval of current literature in tension control with the ultimate development of a comprehensive bibliography.

Note: For each entry, the reader will find in addition to the normal bibliographical data, the cost of most items and the publishers' addresses. A very brief annotation has been added for a majority of entries.

Additional copies are available from the Chairman @.50 per copy to defray printing costs.

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Marcella Woods, Ph.D.
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Marigold Edwards, Ph.D.
Roger Enfield, Ph.D.

9-22-75

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Committee on Bibliography and Criteria

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Basmajian, J.V., Muscles Alive: Their Function Revealed by Electromyography Baltimore: Williams and Wilkins (428 E. Preston St., 21202), 3rd Ed., 1974. $17.50 Experimental, technical treatment of EMG research.

Benson, H., et. al., "The Relaxation Response." Psychiatry 37:37-46 (Feb., 1974). Describing a new clinical treatment based on experience with transcendental meditation. Tentative and incomplete evidence.

Bernstein, D.A. and Borkovec, T.D., Progressive Relaxation Training. Champaign, Ill.: Research Press (Box 31775 County Fair Sta., 61820), 1973. $4.75 paper The Wolpe variant of progressive relaxation as commonly employed in psychiatry.

Blanchard, E.B. and Young, L.D., "Clinical Applications of Biofeedback Training." Arch. Gen. Psychiatry 30:573-589 (May, 1974) An excellent review with especially good charts. Conclusion - biofeedback may be an overelaborate method of teaching relaxation. See also from same authors - "Self-Control of Cardiac Functioning: A Promise as Yet Unfulfilled." Psych. Bull. 79:145-163.

Brown, B., New Mind, New Body. N.Y.: Harper and Row (10 E. 53rd St., 10022), 1974 $9.95 A good layman's overview of the field. With respect to this author, a "Don't hold the party, yet" caution. See Melzack below.

Budzynski, T.H., et. al., "EMG Biofeedback and Tension Headache: A Controlled Outcome Study." Psychosomatic Medicine 35:484-496 (Nov., 1973) AAATC Psychology Div. Chairman, Johann Stoyva, also prominent in this important study described by Blanchard and Young and others as the only firm study in the field. See also Melzack's comments.

Cannon, W.B., The Wisdom of the Body. N.Y.: Norton Library (500 5th Ave., 10036), 1963. $3.45 A classic. Another classic by the same pioneer is Bodily Changes in Pain, Hunger, Fear and Rage. Washington, D.C.: McGrath Pub. Co. reprint (821 15th St., N.W., 20005), 1970.

Cooley, D.G., "Cells That Communicate." (Part 1 - The Brain and Its Pathways) Today's Health May, 1963 pp. 21-25+ (Part II - How Nerve Cells Work) June, 1963 pp. 39-41+ Contains excellent diagrams leading to a basic understanding of the nervous system.

Gellhorn, E., "Motion and Emotion: The Role of Proprioception in the Physiology and Pathology of the Emotions." Psych. Review 71:457-472 Amplifying remarks in Jacobson's Biology of Emotions.

Harrow, A.J., A Taxonomy of the Psychomotor Domain (A Guide for Developing Behavioral Objectives). N.Y.: David McKay Co., Inc. (750 3rd Ave., 10017), 1972. $2.95 paper A good reference completing the series begun by Bloom et al.

Haugen, G.B., Dixon, H.H. and Dickel, H.A., A Therapy for Anxiety Tension Reactions. N.Y.: The Macmillan Co. (866 3rd Ave., 10022), 1960.

Huxley, H.E., "The Mechanism of Muscular Contraction." Scientific American 21:18+ (1965) See also Murray, J.M. and Weber, A., "The Cooperative Action of Muscle Proteins." Scientific American Feb., 1974 p. 59+ Both of these articles as well as others found in this journal are excellent for teaching since slides made from detailed illustrations are the best available. Details given of the discoveries of cell biologists.

Jacobson, E., Direct Electrical Measurements of Mental Activities in Action Potentials (Vol. 1 Reprints) Chicago: Laboratory for Clinical Physiology (55 E. Washington St., 60602) $1.50 This classic series of studies was originally found in 1930 and 1931 in the American Journal of Physiology contributed immensely to the understanding of "mental activity."

_____, Progressive Relaxation. (2nd Ed.) Chicago: University of Chicago Press, 1938. (Reprint currently available from Laboratory for Clincal Physiology) $16.50 Perhaps the classic work in tension control most frequently cited as a reference. Many techniques for instruction are found which can easily be adapted for school use.

_____, You Must Relax. (4th Ed. soon to be revised) N.Y.: McGraw-Hill Book Co. , 1962 This text is commonly used by students taking a first course in tension control or relaxation.

_____, Self-Operations Control. Phila.: J.B. Lippincott Co. (E. Washington Square, 19105), 1964 30 copies for $12.00 An excellent supplemental pamphlet for the instructor illustrating all muscle groups employed in training sessions and practice.

_____, Biology of Emotions. Springfield, Ill.: Charles C. Thomas Publishers (301-327 E. Lawrence Ave., 62703), 1967 $7.50 A new definition for emotions with an excellent review of theoretical and clinical work.

Laban, R. and Lawrence, F.C., Effort. Boston: Plays Inc. (8 Arlington St., 02116), 1974. This valuable little book treats the qualitative analysis of movement in a very special way. Effort based therapies are based on this work. The publisher carries a full line of the Macdonald-Evans movement books inclusive of many on dance therapy.

Luthe, W., "Autogenic Training: Method, Research and Application in Medicine." American Journal of Psychotherapy 17:174-195, 1963. The only definitive article to be found in the literature. Other works in English may be obtained from Grune and Stratton Pubs., The article cited is also found in Biofeedback and Self-Control (Reader), See below. Volume 1 of the Grune and Stratton series is most often cited. (Luthe and Schultz - 1970 - Vol. 1, $13.75; Vol. 2, $11.75; Vol. 3,$11.75 - Luthe is credited with Vols. 4-6; Vol. 4, $14.75; Vol. 5, $17.50 and Vol. 6, $19.75) An earlier volume by Luthe (1965) is also available from Grune and Stratton entitled Autogenic Training, $17.50. (Grune and Stratton, Inc., 111 Fifth Ave., N.Y., N.Y., 10003. Methods of training based on autosuggestion.

Mason, J., "The Integrative Approach in Medicine - Implications of Neuroendocrine Mechanisms." Perspectives in Biology and Medicine, Spring, 1974 pp. 333-347 Outlining what the author feels is the modern approach to the study of "stress." See also first two issues of the Journal of Human Stress (Cited below under "Jounals.") for a contrast between the positions of Mason and Selye.

McCroskey, J.C., "The Implementation of a Large Scale Program of Systematic Desensitization for Communication Apprehension." The Speech Teacher 21:269-277, 1972 Recommended by Professor John A. Daly of Purdue University's Communication Research Center as a most recent "classic" on the treatment of "stage fright." A reference to Dr. Daly's bibliography on communication apprehension is found below under "Bibliographical Materials."

McGuigan, F.J. and Schoonover, R.A., (Eds.), The Psychophysiology of Thinking. N.Y.: Academic Press (111 Fifth Ave., 10003), 1973 $26.50 A collection of papers presented at the Hollins College Symposium on the Psychobiology of Thinking with contributions by leading authorities. (Note: A transcript of Dr. Jacobson's most recent thoughts on mental activities is available from the compiler.)

Naranjo, C. and Ornstein, R.E., On the Psychology of Meditation. N.Y.: Viking Press (625 Madison Ave., 10022), 1971 $2.25 paper A concise, two-part exposure of scientific and religious approaches to meditation. See also Ornstein in "Reference Works" below.

Paul, G.L., "Physiological Effects of Relaxation Training and Hypnotic Suggestion." Journal of Abnormal Psychology 74:425-437, 1969. One of the few comparative studies to be found in the literature.

Richardson, A., Mental Imagery. N.Y.: Springer Pub. Co., Inc. (200 Park Ave. S., 10003), 1969 $7.50 A good coverage of the research on covert rehearsal leading to an understanding of the variables of "mental practice." Relates Jacobson's work to this field of study.

Schwartz, G.E., "Biofeedback as Therapy: Some Theoretical and Practical Issues." American Psychologist Aug., 1973 pp. 666-673 A good article outlining the variables and problems encountered in this field.

_____, "The Psychobiology of Relaxation and Related States: A Multi-Process Theory." (Written with R.J. Davidson in 1973) in Mostofski, D. (Ed.), Behavior Control and Modification of Physiological Activity. N.Y.: Prentice-Hall, In Press This chapter contains an excellent bibliography and a working classification of relaxation techniques notated by the extent to which they represent either cognitive or somatic emphasis (or both). The article provides much food for thought.

Selye, H., The Stress of Life. N.Y.: McGraw-Hill Book Co. (1221 Avenue of the Americas, 10036), 1965 $7.50 (To be revised in 1975.) Written for the general reader, Selye exposes his concepts of stress including the G.A.S. and L.A.S. His more recent Stress Without Distress (Lippincott Pubs., E. Washington Square, Phila., Pa., 19105 $6.95) adds to the definitions presented in his former publications. (Stress, distress and eustress) His Acta publication on stress is also soon to be revised.

Sherrington, C., Man on His Nature. (2nd Ed.) N.Y.: Cambridge University Press (32 E. 57th St., 10022), 1963 $3.75 paper This collection of Sir Charles Sherrington's series of lectures is a most interesting background volume. His concepts are colorfully presented and can add to the lectures of those teaching tension control.

Simeons, A.T., Man's Presumptious Brain. N.Y.: E.P. Dutton Co. (201 Park Ave. S., 10003), 1962 $2.95 paper An evolutionary approach to the modern, tension problems of man. Interesting reading.

Sokolov, A.N., Inner Speech and Thought. N.Y.: Plenum Press (227 W. 17th St., 10011), 1972 $22.50 (Translation from the Russian edited by D.B. Lindsley.) Clearly confirming Jacobson's work with an insight to similar experimentation conducted in Russia.

Steinhaus, A. and Norris, J., Teaching Neuromuscular Relaxation. Chicago: George Williams College, 1964 (No longer in print.) This important volume was completed by virtue of an H.E.W. grant (Office of Education Project # 1529) and demonstrates the value of teacher training or re-training for the purpose of promoting neuromuscular relaxation in the public schools. An abstract of this project is found in Quest ("F Theories of Neuromuscular Relaxation." Winter Issue 1964 pp. 3-14.).

Steinhaus, A., "Your Muscles See More Than Your Eyes." Journal of Health, Physical Education and Recreation Sept., 1966 pp. 38-40. A good introductory article on proprioception written by the most prominent physical educator in the tension control field.

Stoyva, J. and Budzynski, T., "Cultivated Low Arousal - An Antistress Response?" in DiCara, L.V., et. al. (Eds.), Biofeedback and Self-Control - 1974. Chicago: Aldine Publishing Co. (529 S. Wabash Ave., 60605), 1974 $20.00 (See "Reference Works" below for all Aldine listings.) A full discussion of the role of cultivated low arousal in modifying man's defense-alarm reaction.

Teichner, W.H., "Interaction of Behavioral and Physiological Stress Reactions." Psych. Review 75:271-291, July, 1968 A discussion of "bandwidth" and related inverted "U" phemonena as they interact in Teichner's model and theory.

Whatmore, G.B. and Kohli, D., The Physiopathology and Treatment of Functional Disorders. N.Y.: Grune and Stratton (111 Fifth Ave., 10003), 1973. $14.00

Wolpe, J., Psychotherapy by Reciprocal Inhibition. Stanford, Cal.: Stanford University Press (94305), 1958. $7.50 This is a standard work in the field.

_____, The Practice of Behavior Therapy. (2nd Ed.) Elmsford, N.Y.: Maxwell House (Fairview Park, 10523), 1974 $6.50 paper The most common reference for systematic desensitization.

Selected Audio-Visual Materials

Basmajian, J. and Stoyva, J., (Eds.) Biofeedback Techniques in Clinical Practice. Vol. I N.Y.: BioMonitoring Applications, Inc. (270 Madison Ave., 10016), 1975 This first volume is a collection of ten tapes recorded to bring the listener up-to-date information about ongoing therapies. Some tapes are for actual practice.

On-The-Spot (10642 Balboa Blvd., Granada Hills, Calif., 91344) This company has available casettes recorded at a number of national conferences including AAHPER's 1975 Convention with selections by E.E. Green, M. Edwards and others.

Films

University of Iowa (Iowa City, Iowa, 52240 - Audiovisual Center)

#U-40126 Muscles: Dynamics of Contraction Rental $10.25

#U-20245 Muscle: Electrical Activity of Contraction Rental $4.75

#U-20295 What Makes Muscles Pull? Rental $ 5.40

Bureau of Audio-Visual Instruction (BAVI) University of Wisconsin Extension, Madison, Wisc., 53711

#4295 Muscle Spindle Rental $8.50

Note: All of the above contain excellent simulations of the intricate workings of the muscles based on photomicrography. They may be used in conjunction with slides made from the pages of Scientific American (See Huxley above.)

Supplementary Reference Works

Birk, L. (Ed.), Biofeedback: Behavioral Medicine. N.Y.: Grune and Stratton (111 Fifth Ave., 10003), 1973. $11.50 Used increasingly as a reference.

Greenfield, N.S. and Sternbach, R.A., Handbook of Psychophysiology. N.Y.: Holt, Rinehart and Winston, Inc. (383 Madison Ave.,10017), 1973. $25.95 Undoubtedly one of the best references for the student of tension control containing an unusually large bibliographical treatment with the work of more than 4,000 people documented. This source could easily be employed as a key source for definitions of those terms which are commonly employed in the tension control field.

Ornstein, Robert E. (Ed.), The Nature of Human Consciousness: A Book of Readings. N.Y.: The Viking Press (625 Madison Ave., 10022), 1974. $15.00 A good selection of readings on a popular topic including those expressing both Eastern and Western points of view.

Rathbone, J.L., Relaxation. Phila.:Lea and Febiger (Washington Square, 19106), 1969. $5.95 The first physical educator to write on the subject of relaxation. Material now somewhat dated but it should be noted since it was an attempt to get educators involved. See also the work of Steinhaus in the physical education field and the following article which brought much attention to the field of education of Dr. Jacobson's work:

Frederick, A.B., "Tension Control in the Physical Education Classroom." Journal of Health, Physical Education and Recreation. Sept., 1967. The program described was much inspired by the assistance of Miss Bernardine Lutkin.

Wilson, M.D. (Ed.), The Essential Descartes. N.Y.:Mentor Books (New American Library, 1301 Avenue of the Americas, 10019), 1969. $ 1.95 An excellent collection with a good introduction. See also the following treatment of the mind-body problem:

Campbell, K., Body and Mind. N.Y.:Anchor Books (501 Franklin Ave., Garden City, N.Y., 11530), 1970 $1.45 A philosophical treatment of the variables involved in the mind-body problem with insightful comments about its current status in the professions.

Bibliographical References

Biofeedback and Self-Control - These volumes represent annual collections of significant works in biofeedback and self-control. Articles are selected from leading journals in psychology, science and medicine by a panel of expert editors one of whom is selected to write an introductory summary. Summarizers have included our own Chairman of the Psychology Division of AAATC, Johann Stoyva, who served as editor for the first two annuals (1970 and 1971). Other prominent members of the Biofeedback Research Society serving as editors have been David Shapiro, Neil E. Miller and Leo V. DiCara. A special "Reader" has also been assembled which contains a collection of articles of interest appearing prior to 1970. These are excellent reference volumes and no library in the tension control field should be without them.

"The Biofeedback Reader" (Biofeedback and Self-Control - An Aldine Reader on the Regulation of Bodily Processes and Consciousness) 1971 $18.95

Biofeedback and Self-Control - 1970 (1971) $20.00

Biofeedback and Self-Control - 1971 (1972) $20.00

Biofeedback and Self-Control - 1972 (1973) $20.00

Biofeedback and Self-Control - 1973 (1974) $20.00

Biofeedback and Self-Control - 1974 (1975) $20.00

Aldine Publishing Co., 529 South Wabash Ave., Chicago, ILL. 60605

Butler, F. and Stoyva, J., (Eds.), Biofeedback and Self-Regulation: A Bibliography. Denver, Colorado: Biofeedback Research Society (University of Colorado Medical Center, #202, 4200 E. 9th Ave., Denver, Colorado 80220), 1973. $6.50 Categorized nicely for easy use. A valuable tool.

Daly, J.A., Communication Apprehension ("Stage Fright"): A Preliminary Bibliography of Research. West Lafayette, Ind.: Purdue University Communication Research Center (47907), n.d. Highly specialized.

Davis, M., Understanding Body Movement: An Annotated Bibliography. N.Y.: Arno Press (330 Madison Ave., 10017), 1972 $15.00
This is the best publication on the subject with good cross indexing to make the bibliography most useful. Tension control topics are included.

Kanellakos, D.P. and Lucas, J.S., The Psychobiology of Transcendental Meditation: A Literature Review. Menlo Park, Cal.: W.A. Benjamin, Inc., 1974. A very complete review as compared with the current best-seller by Bloomfield et.al. TM Discovering Inner Energy and Overcoming Stress (Delacorte Press, 1975) the latter systematically neglecting the cautions of the authors and excluding all studies having negative implications. In a personal note Kanellakos now claims to make other conclusions about his work which are more positive citing the work of Glueck and Stroebel at the Institute of Living in Hartford Connecticut. Nothing of note on the subject of TM has been forthcoming from the Hartford group. The failure of TM people to specify the assignment of the mantra including some analysis of the personality screen employed as well as the formulation of the phonemes employed by initiators makes comparison studies all but impossible. The key to the mantra question might lie in Mahesh's Maharishi Mahesh Yogi on the Bhagavad-Gita, Baltimore: Penguin Books, 1969. Nothing else on the subject has appeared except some insightful remarks by Gary Schwartz in the pages of Psychology Today (April, 1974 pp. 39-44 "TM Relaxes Some People and Makes Them Feel Better")

Luce, G.G., Biological Rhythms in Human and Animal Physiology. N.Y.: Dover Publications (180 Varick St., 10014), 1971. $2.50
An extensive, thirty-one page bibliography is included.

List of Journals Cited and New Journals

Most of the information below was obtained in the 15th Edition of Ulrich's International Periodicals Directory. Some of the journals represent new and important media for publications in tension control.

American Journal of Psychotherapy (1946) Ed. Dr. Stanley Lesse, Assoc. for the Advancement of Psychotherapy, 119-21 Metropolitan Ave., Jamaica, N.Y., 11415. Quarterly $16.00

American Psychologist (1946) Ed. Kenneth B. Little. American Psychological Assoc., 1200 17th St., N.W., Washington, D.C. 20036 Monthly $12.00

Archives of General Psychiatry (1959) Ed. Dr. Daniel X. Freedman. American Medical Assoc. 535 N. Dearborn St., Chicago, Ill. 60610 Monthly $12.00

American Journal of Physiology (1898) American Physiological Society, 9650 Rockville Pike, Bethesda, Md. 20014 Monthly $75.00

Biofeedback and Self-Control (To be published in late 1975 or early 1976) Ed. Dr. Johann Stoyva Biofeedback Research Society, c/o University of Colorado Medical Center, #202, 4200 E. 9th Ave., Denver, Colorado 80220 Quarterly $15.00 (Free examination copy.)

Electroencephalography and Clinical Neurophysiology ("The EEG Journal") 1949 (Also incorporating Index to Current EEG Literature.) Ed.Bd. Elsevier Scientific Publishing Co., Box 211, Amsterdam, Netherlands. Monthly 150 Florins

Electromyography (1961) Ed. N. Rosselle. E. Nauwelaerts, Ladeuzeplein 2, Louvain, Belgium (Eng. text available) Quarterly $16.50

Journal of Abnormal Psychology (1965) Ed. Howard F. Hunt. American Psychological Assoc., 1200 17th St., N.W., Washington, D.C. 20036 Bi-Monthly $20.00

Journal of Applied Psychology (1917) Ed. Edwin Fleischman. American Institutes for Research, 8555 16th St., Silver Spring, Md. 20910 Bi-Monthly $24.00

Journal of General Psychology (1927) Ed. Warren H. Teichner, Journal Press, 2 Commercial St., Provincetown, Mass. 02657 Quarterly $26.00

Journal of Physical Education and Recreation (Only recently dropped "Health" from title.) Ed. Nancy Rosenberg. American Alliance for Health, Physical Education and Recreation, 1201 16th St., N.W., Washington, D.C., 20036 Monthly (Sept.-June) $25.00

Journal of Human Stress (1975) Only two issues thus far. Assoc. Ed., Lorraine Gordon, 82 Cochituate Rd., Framingham, Mass. 01701 Quarterly $7.50

Journal of Human Movement Studies (1975) Only two issues thus far. Eds. H.T.A. Whiting and M.G. Whiting Dept. of Physical Education, University of Leeds, Leeds LS2 9JT, England. Quarterly Note: Editorial Board includes K.J. Connolly, H.J. Eysenck, J. Paillard, A.T. Welford, B.J. Cratty and A.J. Smith.

Perspectives in Biology and Medicine (1957) Ed. Dr. Dwight J. Ingle, University of Chicago Press, 5801 S. Ellis Ave., Chicago, Ill., 60637 Quarterly $10.00

Psychiatry (1938) Ed. Dr. Donald L. Burnham, William Alanson White Psychiatric Foundation, Inc., 1610 Nee Hampshire Ave., N.W., Washington, D.C. 20009 Quarterly $12.50

Psychological Bulletin (1904) Ed. Lloyd G. Humphries American Psychological Assoc., Inc., 1200 17th St. N.W., Washington, D.C. 20036 Monthly $20.00

Psychological Review (1894) Ed. Charles N. Cofer American Psychological Assoc., Inc., 1200 17th St. N.W., Washington, D.C. 20036 Bi-Monthly $10.00

Psychology Today (1967) Ed. T. George Harris CRM Inc., Del Mar, Cal., 92014 Monthly $12.00

Psychophysiology (1964) Ed. Dr. Albert F. Ax Society for Psychophysiological Research, 951 E. Lafayette, Detroit, Mich., 48207 Bi-Monthly $30.00

Psychosomatic Medicine (1938) Ed. Herbert Weiner American Psychosomatic Society c/o American Elsevier Publishing Co., 52 Vanderbilt Ave., New York, N.Y., 10017 Bi-Monthly $17.50

Quest (1963) Ed. Dr. Betty Spears, School of Physical Education, University of Massachusetts, Amherst, Mass., 01002 Publication of the Nat'l. Assoc. for Physical Education of College Women and National College Physical Education Assoc. for Men. Quarterly $8.00

Scientific American (1845) Ed. Dennis Flanagan Scientific American, Inc. 415 Madison Ave., New York, N.Y. 10017 Monthly $10.00

Speech Teacher (1952) Ed. Dr. Mary M. Roberts Speech Communication Assoc. Statler-Hilton Hotel, New York, N.Y. 10001 Quarterly $15.00

Today's Health (1923) Eds. Bard Lindeman and David Sendler American Medical Assoc., 535 N. Dearborn St., Chicago, Ill. 60610 Monthly $5.00

CRITERIA

Although there is much more we must do as an Association prior to the establishment of firm criteria for acceptable research and certification in the tension control field, there are some valuable clues from present research and thinking that should help us in this important task. In order that we speak some common language, I suggest that Greenfield and Sternbach's Handbook of Psychophysiology be employed as a prime reference that should be within easy reach of most members (See p. 7 above). It is apparent that certain words that are commonly employed by workers in the tension control field often have (or refer to) a variety of interpretations. This makes inter-disciplinary study extremely difficult and can result in needless semantic inefficiency. I will touch briefly on such difficult words momentarily. Most of them are identified on the montage which has been constructed as a cover for this review. The montage is the work of the Chairman and is not to be construed presently as an instrument of the Association. It is a "Stammbaum" of the tension literature as I see it and rightly, I believe, is inclusive of many areas which have little to do with our prime purposes. I believe such peripheral methods and techniques must be given their day in court.

One clue to what is needed has been supplied by Ronald Melzack whose interesting article in Psychology Today (July, 1975, pp. 18-22+) cautions, "Don't Hold the Party Yet" in reference to biofeedback. This theme is also apparent in the Greenfield-Sternbach Handbook. Melzack's statement that "astonishingly, only a single study has so far provided definitive data" with respect to the biofeedback field (Budzynski et.al., 1973 - See p. 1 above.). The criteria he presents are as follows:

1. Provide data to indicate that the biofeedback procedure is greater than an expected placebo effect.

2. Biofeedback therapy must be of sufficient magnitude and duration to have clinical significance. (The problem of clinical significance vs. statistical significance is further explored by Blanchard and Young - See p. 1 above.)

3. Learning transfer from the laboratory to normal life conditions implies that the training has made some impact upon habit formation. There is a great lesson to be learned here from the practical experience of gymnastic specialists who understand the delicacy of the timing involved in the weaning process in skill learning. The acrobat is accustomed to hear "Take him out of the belt!"

4. Maintenance of follow-up records during the post-treatment period for substantial periods of time. How much time is enough? I believe we should think about this problem.

Blanchard and Young's excellent article reviewing the current evidence in biofeedback (featured as the lead article in the 1974 Aldine annual Biofeedback and Self-Control, pp. 3-39) also include a kind of "power test" for reported research. Their classification of research work includes the following categories:

1. Anacdotal case reports 2. Systematic case reports

3. Systematic case studies 4. Controlled single subject experiments

5. Single group outcome studies 6. Controlled group outcome studies

They too have commented upon the uniqueness of the Budzynski et. al. study which is in category six thus apparently showing agreement with Melzack. There is another statement by these writers which merits our attention ...

> " ... it seems possible that the biofeedback procedures may be only elaborate methods for teaching relaxation."

and refer specifically to a paper by Tasto and Shoemaker read at the Seventh annual meeting of the Association for the Advancement of Behavior Therapy. They recommend the following sources to those contemplating research:

> Paul, G.L., "Behavior Modification Research: Design and Tactics." in Franks, C.M., Ed., Behavior Therapy: Appraisal and Status. N.Y.: McGraw-Hill Book Co., Inc., 1969

Campbell, D.T. and Stanley, J.C., Experimental and Quasi-Experimental Designs for Research. Chicago: Rand-McNally & Co., 1966.

Barlow, D.H. and Hersen, M., "Single Case Experimental Designs: Uses in Applied Clinical Research." Archives of General Psychiatry 29:319-325, 1973.

Marinacci, A.A. and Horande, M., "EMG in Neuromuscular Re-Education." Bulletin of the Los Angeles Neurological Society 25: 57-71, 1960.

EMG Research - The best general reference I have found as mentioned above leading to many other specific references is the Greenfield-Sternbach Handbook of Psychophysiology. The following sub-topics under EMG are given which can be employed for the development of standards by an appropriate AAATC committee:

1. Apparatus 2. Electrodes 3. Amplification 4. Recording systems

5. Integration 6. Experimental difficulties 7. The concept of muscle tension

8. Selection of muscle groups and electrode sites

9. Muscle depth 10. Controlling important physical variables

11. Artifacts 12. Reliability of measurement

This list represents a minimal account of the factors one might consider in depth in the evaluation of or conduct of research employing EMG apparatus.

Theoretical - There are two papers that are particularly enlightening with respect to models one might build for tension control. The Davidson-Schwartz paper soon to be published in Mostofsky's Behavior Control and Modification of Physiological Activity describes a multi-process theory of relaxation methods. The authors present a notated chart using somatic and cognitive variables to describe their theory and for purposes of prediction. At the very least, this approach should help us understand differences in present methodology. For example, there is a tendency for writers to generally lump together techniques associated with Jacobsonian relaxation and autogenic training.

Teichner's article on "stress" presents another sort of model including postulates, corollaries and supporting research of the effect of increased activation on attention and ultimately on performance. He employs the terms, "physical" and "symbolic" in a scheme of relationships accounting for "stress" reactions. Also prominent in Teichner's theory are factors referred to as "tuning," "filtering" and "reversal." He explains such variables in terms of an inverted curve ("U"-shaped) which has implications for both clinical methodology and skill education.

Words, Words, Words

We have begun with words and we'll end with words. There is little doubt that they give us trouble. Any serious reviewer will be struck by the fact that key words in tension control are commonly found on a broad continuum of meaning. Some of the prominent culprits are: (After each word I suggest some conceptual common ground.)

1. Anxiety - Some notion of fear manufactured needlessly by the individual. Emotion.
2. Biofeedback - An information system; not a therapy per se.
3. Emotion - The idea of an integrated response.
4. Hypertension - Unfortunately this has come to mean high blood pressure.
5. Relaxation - The idea of a state of approximately zero tension in muscle. The idea of EMG verification. The opposite of tension.
6. Stress - Although this word is the most ambiguous of all, I suggest that we start out with some notion of the endocrine implication and failing the "endocrine test" that some other, more appropriate term be employed.
7. Tension - A measurable state of the muscle in terms of EMG electrical potentials signaling the onset of muscle contraction. If our use fails the "muscle test" some other term should be utilized.

At the very least, the AAATC should form a small committee on terminology with the goal of formulating acceptable operational definitions.